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Chrysanthemums.

THE remarkable popularity of the Chrysanthemum in recent years can hardly be classed among those transient floral epidemics, so many of which are on record in the history of horticulture. The rage for Sunflowers and Daisies, with many another ephemeral caprice of this sort, died out as suddenly as they arose, not because the flower which chanced to be the prevailing fashion had no merit, but because an exaggerated or fictitious beauty and value were claimed for it. The interest in the Chrysanthemum has had a slow and steady development, and it is based on the genuine worth of the flower. It appears at a time when rivals are few and its blooming period extends over a long season. It ranges through a series of rich, mellow tones of color, and no flower lends itself more readily to the production of decorative effects. In form it has the merit of symmetry, without a hint of rigid formality or any chilling suggestion of artificiality, such as characterizes a double Dahlia or a prize Camellia. No other flower equals it in the diversity of form which it assumes within the limits of perfect proportion. Each variety and class of varieties shows such a marked individuality in the shaping and arrangement of its parts, or such a delightful waywardness in the curving and twisting of its florets, that one can examine a hundred flowers and never find the outline of a single one repeated. When it is remembered, too, how much of promise for the future of the Chrysanthemum there is in this free habit of blossoming out into novel and graceful forms, we can rest satisfied that not even the Rose will more securely maintain its position as an established favorite among flowers.

The history of the Chrysanthemum's development from its earlier and more simple garden forms, is most interesting. It will suffice for our present purpose to note that Loudon, in his Cyclopedia published in 1824, speaks of numerous varieties "recently obtained from China," where the flower had long been cultivated. He enumerates forty-four varieties, of which few are now to be found in cultivation. The Large Lilac is one of those which still may be found in old gardens on Long Island and in other parts of this state. Perhaps several of them still survive in old places still further south. Some of them, like the Tasseled Yellow and White, the Yellow Waratah and the Golden Lotus-flowered, would be appreciated now if they could be re-introduced and cultivated under approved modern methods. Samuel Broome, in 1857, published a list of the varieties then growing in the Temple Garden, London, and among them were 184 varieties of what was known as the Chinese Chrysanthemum, eighteen Large-flowered Anemones, 140 Pompons or Liliputs, and thirty Anemone Pompons. Of these, there are found in collections to-day, twenty-five Chinese, eight Chinese Anemones, twenty-one Pompons and ten Anemone Pompons. It is hardly twenty-five years since flowers belonging to the Japanese section were introduced to general notice. It was in 1865 that the *Gardeners' Chronicle* reported that Mr. Veitch had sent home "three very distinct forms, evidently the representatives of many beautiful productions yet unborn." Two of them had peculiar ligulate ray-flowers, all or nearly all of which were drawn out into extremely narrow, sharp terminations, now and then inclined to fork. The third was of quite another kind, close-headed, incurved, with all the florets divided into two irregular and unequal lips. The now famous Grandiflorum was sent by Robert Fortune to John Standish, of Ascot, and shown by him as early as 1862. At the same time were exhibited Laciniatum and Japonicum, the former spoken of as a "distinct Japanese variety of the Chinese Chrysanthemum with white flower-heads composed of fringed tubular petals." The report speaks of the latter as being remarkable for its slender, tubular, curved florets. How all these peculiarities have been intensified since their introduction, and fused together into new combinations, is made plain in any ordinary collection to-day.

Enthusiastic cultivators in this country recognized the value of the Chrysanthemum long ago, but it is scarcely more than seven years since this flower first attained its real popularity here. Mr. H. P. Walcott, in Boston, Mr. W. K. Harris, in Philadelphia, and Mr. John Thorpe, in New York, were most conspicuous in bringing it into public favor. The importation from Japan, by Waterer, of some fifty varieties, in 1883, many of which were most distinct and beautiful, gave a new impulse to hybridizing, and now the new kinds that appear every year are almost numberless. At least 10,000 tried seedlings have been on exhibition for the first time this year. The diversity of form and color displayed is almost infinite, and the various strains have been so intercrossed that the seeds from a single flower-head will often produce examples of the types most widely separated in structure and size, together with intermediate and kindred forms. The strong propensity of the Chrysanthemum to variation has been of great advantage to the originators of new varieties, and, by careful selection, the improvement in color has been as striking as the changes in form. Shades and tints which were unknown in this flower a decade ago are now common. Maroons, crimsons, rose, pink and buff have all become more decided. The markings of parti-colored flowers upon the tips and along the marginal lines have become more distinct, and the production of a scarlet flower is not despaired of by those who have done the most to bring out the newer and formerly unknown shades. It is small wonder, then, that exhibitions devoted exclusively to Chrysanthemums have been held in at least a dozen of our cities this year, while only four years ago Boston, New York and Philadelphia alone had such displays.

No one can prophesy in what direction the next marked improvement in the Chrysanthemum may be looked for; but, judging from the past, striking variations from the forms we are now familiar with may be expected. Those who studiously note the development of new seedlings are quick to mark the appearance of slight peculiarities, for these may be the forerunners of distinct types. For some

years the appearance of hair-like growths from the under side of an occasional floret has been observed, but they were never sufficiently numerous to give any character to the flower. But last year the remarkable variety, Mrs. Alpheus Hardy, which was figured in the first number of this journal, was found in a Japanese importation, and in this each floret was thickly set with these slender growths, giving an entirely new character and expression to the head. Up to a comparatively recent time the section with laciniated florets invariably had small heads, which did not show distinctly this characteristic. Some of the newer varieties of this type have florets three inches long, with four or more bifurcations, and spreading at least to three-quarters of an inch in width. In many cases the florets, for two-thirds of their length from the disc, are tubular, and then branch abruptly into their particular toothed forms. And the disposition of the florets is quite as interesting as their shape. In many cases their arrangement is flat; again they are reflexed; while in others still they are incurved and confused into a globular mass of slender shreds, which often show the upper and lower surface in each floret. But slight modifications of these characters are needed for the origination of a new class of Chrysanthemums as distinct as any heretofore produced.

But whatever the forms with which the Chrysanthemum may be endowed in the future, we may feel sure, from what we know of its inherited tendencies, that the flower will continue to show that freedom and fluent grace of outline which so strongly commend it to the taste of the time.

Piazzas.—II.

WE explained last week that there is no need for piazzas so extensive as those which a few years ago were commonly attached to our country houses. Their full purpose may be served in almost every possible case if they are placed only on one side of the house, or on a corner, so as partly to encircle two sides. The interior is thus left more free for the admission of light and sun, and architectural effect is improved, while convenience is amply considered. Especially is this true if the covered piazza is supplemented by other external features.

Indeed, the chance to secure such features is in itself sufficient reason why piazzas should not be too large. In a house of the old piazza-encircled type it was difficult, for instance, to emphasize the chief entrance, which, if a home is to have the right effect, should always be hospitably prominent. Upper balconies, which are often so useful as well as pretty, could not be well placed above the long piazza roofs. Terraces were hard to treat, and that delightful feature, the Italian loggia, was impossible, at least on the ground floor.

Of late we have begun to employ these other external features with the happiest results in the way of comfort as well as beauty. The front door is accentuated by an independent porch, often usefully extended over the driveway. Upper balconies are attached to the chief bedrooms or thrown out from any window which chances to command a particularly attractive view. Uncovered terraces of turf or of stone are formed where needful, and a portion of the piazza itself is often left uncovered, supplying a pleasant place of resort when dull weather or autumn cold renders a roof unnecessary, and delightful at night in warmer weather. And loggias are seen in both the lower and the upper stories.

No architectural innovation is more to be commended than the use of the loggia, which may be described as a recessed piazza—a piazza set back into the body of the house, flanked at either end by the walls and covered by the projection of the upper story. In Italy it does not usually appear on the ground floor, for there this floor is not devoted to the chief apartments; but its effect is just as good when it is adapted to our own customs of building and living. In certain very exposed situations the piazza may well be entirely banished in favor of a loggia, and in others a small open piazza may be effectively supplemented by a larger loggia; while in almost every country house at least a little loggia should be introduced either up-stairs or down. Our climate is so very variable that too careful a provision can hardly be made for changing winds and skies and temperatures.

Another useful device is a terrace protected by a trellis over which are trained vines that will soon form a thick summer covering, while their naked stems will in winter admit light and sun to the rooms behind. Or an awning may be used if its effect is preferred, or if there is danger that the vines will harbor too many mosquitoes. It has, indeed, a certain advantage over vines in that it may be rolled back in dark weather and supported on movable posts, which can be taken down in winter. Of course neither of these expedients really fills the place of a true piazza, for although they screen from the sun they admit the rain; and if they are of great extent they detract from solidity of effect in the house. But a small vine-covered terrace is never inadmissible, and a small awning is rarely offensive; and they may at least be recommended as supplements to a true piazza, or even as substitutes for it in houses occupied throughout the year and in positions where a permanent piazza-roof would be a serious inconvenience.

We have already said that the pleasing treatment of piazzas is one of the most difficult of current architectural problems. It is true that charming houses with long verandas have been built for generations in certain southern countries. But although we may get valuable hints from them, they cannot be used as models. Ours is not a truly southern climate, but one in which almost tropical heat alternates with almost Siberian cold. Our more complicated habits of life demand more complicated ground-plans than those which serve, for instance, for an Indian bungalow, and every deviation from a simply outlined and low-roofed form makes the right architectural use of piazzas more difficult. Yet until within quite recent years the problem was hardly recognized as such. No attempt was made so to unite the piazza with the house, in both form and material, that it should seem an integral part of it, and not a mere attached shed. Whatever the material of the house, the piazza was built of wood, and it was simply tacked on to the walls without the slightest thought of union. Its roofs had no relation to the roofs of the house, and its forms were very slight and fragile—the jig-saw running riot in a vain effort to adorn it, but no serious attempt being made to build it beautifully. To-day we see a very great change for the better. The piazza is treated—with more or less success, of course—as part and parcel of the house. It is borne by a solid substructure instead of by isolated posts which allow the cellar walls to be seen, or by a chicken-coop lattice. This substructure is often continued around the piazza as a solid parapet, some three feet in height, which has both artistic and practical merit, for it increases solidity, and therefore dignity of effect, and it screens the feet of the occupants from the wind and protects them somewhat from the gaze of passers while interfering not at all with coolness or with freedom of outlook. If the house is of brick or stone the same material is used to build posts of the piazza, or if wood is employed, simpler and more artistic forms are chosen for them. And it is covered by an outward sweep of the main roof of the house, or by such a disposition of an independent roof that it may play a conspicuous and harmonious part in the general outline of the building. On houses of the revived colonial type the piazza naturally has a flat, balustraded roof, which may be utilized as an uncovered balcony for the upper floor, or some parts of it may be roofed in again as an upper piazza. Difficulties are hardly as great, perhaps, when a flat roof can be employed, as when a steep one is required by the fashion of the greater roof above. Yet, whatever the scheme, we here and there find instances, in ever-increasing number, where it has been thoroughly well managed. Of course an ideal degree of success is seldom seen as yet, and many of our new houses

are quite as ugly in their own way as the shed-encircled boxes which preceded them. And they are, perhaps, even more distressing to the eye; for the old house had at least the merit of frank simplicity, while the new one has often the great demerit of seeming a labored effort after as much eccentricity as possible. Yet, taking good and bad together, the general improvement which has marked our architecture in recent years can nowhere be more clearly read than in our country homes. And it is a most significant proof of the genuine, vital and promising character of our progress that these homes should have been so greatly improved, not through the direct imitation of foreign models, but through the development of indigenous fashions, and the incorporation—despite difficulties which might easily have been thought insuperable—of the "vernacular" piazza.

A Glimpse of Nantucket.

FOR many years the population of Nantucket has been steadily declining. Counting nearly 10,000 souls in 1840, it does not count 4,000 now. And these may be held to represent a "selection of the unfittest," for year by year the more energetic and intelligent youths of the community have gone to seek their fortunes in the outer world. Meanwhile, until quite lately, the island has been scarcely thought of in the outer world save in connection with bygone whales, and has generally been described as a featureless expanse, interesting simply as a bit of sandy wilderness isolated in a wilderness of waves.

Now, however, a change has come—not, indeed, over the numbers or the spirit of the natives, but over the minds of those whom they call "off-islanders." Summer tourists have discovered the cool, bracing equanimity of the Nantucket climate, the homely picturesqueness of its quiet town, and its rich facilities for bathing, boating and fishing; and they flock to its shores in increasing thousands summer after summer. How the islanders lived before this influx began, some twelve years ago, it is hard to imagine, for I have never seen a place more destitute of signs of an attempt to earn a living. There is now no whaling, which is largely the fault of external circumstances; but there is scarcely any sheep-raising, and this must be the fault of the islanders themselves. Great flocks once pastured over the island. Wool was then the main concern and was chiefly used at home. But now, with improved means of transport and the summer immigration, it seems as though a little energy might make the raising of mutton profitable. Agriculture is almost as non-existent as sheep-raising. Nearly the whole population lives in the town and a few distant villages. Farm-houses are few and widely scattered, and the cultivated fields which surround them are rough and very scanty. In the town and along the edges of the shore the summer colonists are likewise gathered, so that a mile away from this shore one can fancy one's self a hundred miles away from anything that approaches to human activity, wealth or progress.

More negatives must still be used before I can begin to tell what does exist in the central regions of Nantucket. In the first place, there are no stones. Knowing that the island was formed during and after the glacial epoch, and is a mere mass of "drift," one does not look for the bed-rock of the mainland to which, for a time, it was attached. But it seems more reasonable to expect those boulders which are strewn over the whole surface of New England, and nowhere more thickly than along the coasts nearest to Nantucket. Yet they do not exist. Broadly speaking, the island is divided into a higher eastern and a lower western portion of almost equal areas. The latter I had no time to visit during a brief two days' sojourn; but many hours of diligent driving showed me the whole of the eastern portion, and I could count on my fingers the stones I saw. Of course, this means that there were none of the picturesque walls which I had left behind in Plymouth County, and which are to be found again on Block Island a little to the westward. But, from a practical point of view at least, the lack of such walls does not greatly matter. Where there is so little to fence in, only the lover of beauty need regret the lack of good fencing material.

Finally, there are no trees on Nantucket, except those which have been planted in the streets of the town, and some scattering plantations of Pitch Pine which were made about forty years ago midway between the northern and the southern shores. The farm-houses stand naked and alone, and even along the many little lakes and ponds one sees neither groves of trees nor thickets of shrubs. The so-called Pine woods, moreover, are almost caricatures of the term. There is no more dauntless and long-suffering tree than the Pitch Pine, but it can seldom have struggled with greater difficulties than on Nantucket. No individual rises more than ten or twelve feet above the soil; all are grotesquely distorted by the fierce sea winds; many are scarred and embrowned by the touch of fire, which starts readily and runs persistently in the dry matted grass; and they look, in consequence, like a collection of ancient dwarfs, not like young woods with possibilities of further growth. Yet from even a little distance these woods actually seem to deserve their name, for everything vertical "tells" with extraordinary force in this landscape, where vertical things are very few, and where slight inequalities of surface, therefore, give the look of far horizons to spots quite near at hand. The eye is so entirely deprived of help in its calculations, that even experience does not soon teach it how to compute distances or dimensions. The first mistake I made was to exclaim at the presence of a great hotel in the middle of a moorland wilderness, the building being, in fact, but a farm-house of moderate size. And after several such mistakes, with a full sense of the likelihood of error, I pronounced a pair of isolated objects to be tall chimneys about five miles off and found them merely tombstones not a mile away.

These groves of gaunt yet dwarfish Pines, then, are the only trees which meet us outside the town, although we are told that White Oaks once grew in certain places large enough to be used for building purposes. The earliest local records speak of "meadows, woods and uplands," and one district bore the name of the "Long Woods;" but a full century ago the island was represented as "wholly destitute of firewood," and dependent, as it is to-day, on Cape Cod for its supply. In the town a great deal of planting was done in former years. When we stand on one of the railed "roof walks" that are so characteristic of a community which perpetually went down to the sea in ships, the panorama of gray roofs is interspersed with an almost equal quantity of foliage. The Elms have stood their long battle with the sea wind fairly well, but more interesting are the Ailanthus trees, which quite as frequently appear. One-sided, as a rule, and often naked of foliage save towards the extremity of their branches, their gray bark and picturesque structure harmonize admirably with the gray picturesqueness of the old unpainted houses; and their foreign air seems appropriate in a place which once was filled with trophies of every kind from many a distant shore.

But the real interest of Nantucket lies in those wide tracts away from the high sandy cliffs where, as far as the eye can reach, no tree is in sight. The prospect is peculiar even to eyes familiar with Block Island and the eastern portions of Long Island. At Block Island the surface undulates perpetually and abruptly, is thickly bestrewn with boulders and shows scarcely any vegetable covering save a close, yellowish grass. At Montauk there are also wide, boldly rolling stretches of such grass; but others where white sand is spotted with great tufts of Hudsonia, and others again where moisture has produced beautiful thickets of shrubs and veritable little forests filled with many species of trees. But at Nantucket the surface is either quite flat for miles or gently rolling in long swells; the ponds are encircled merely by a border of sedges and tall grass, and seem to have no effect upon the soil beyond; there are no reaches of naked sand, and few where the grass is not thickly beset with flowering plants. Where it grew most abundantly it was filled in September with Asters and Golden Asters and Golden Rods and Everlastings—all stunted by the wind to a few inches in height, but vigorously blooming—and with purple Gerardias, showing larger and more deeply colored flowers than I had ever seen elsewhere. But the most characteristic and charming tracts were those which bore no grass, but were covered by a close growth of low undershrubs and trailers—Hudsonia of both species, Bearberry and the Broom Crowberry. Acres upon acres in one direction were covered with the last two alone, alternating in large patches and growing with splendid luxuriance, the Bearberry clothing even the sides of the road with a thick mat of glossy leaves and dark red fruit, and the Heath-like Crowberry rising in dense miniature evergreen thickets, and contrasting exquisitely with its neighbor. A prettier combination I have never seen, and it is hereby recommended to the owners of sandy sea-shore places as an excellent substitute for a turfed lawn. It is as delightful to walk upon as to look at, owing to the springy, Heath-like quality of the Crowberry stems. Hudsonia did not grow with as much luxuriance as at Montauk, yet it was often beautifully effective here and there. I was told that the true Heather (*Calluna vulgaris*) could be found in a few spots on the island,

did one know where to look, and its name is included in the list of native plants printed in the local guide-book.

This list—compiled by Mrs. Owen, of Springfield, Massachusetts—reveals how rich the island flora is. From the botanist's point of view the abandonment of sheep-raising must be accounted fortunate. For, as another contributor to the guide-book writes, when sheep were allowed to roam at large over the commons, it was only by the most diligent seeking that the botanist obtained perfect specimens of any flowering plant. "One feeble specimen of the blossom of the *Hudsonia tomentosa* could be found in perfection where now, freed from the sheep, . . . its yellow flowers are to be had for the glancing. Even the varieties of the Golden Rod, . . . which furnish the rich covering to our commons at times, were not a familiar feature, though known and specified by the scientists of the island." Then it must have been true that Nantucket was a barren waste to the eye; but it is truer to say at this present time that it is a garden of flowers from summer's end to end.

And, according to the belief of many persons whom I met, it might be made a wealth-producing garden, too. The soil, it is said, would be well adapted to certain cereal crops, were it only manured a little; and, even now, the vegetables it produces are of excellent quality. It seems as though there must soon come a time when these vast tracts of now unprofitable land will be turned to some account, perhaps by a revival of energy on the part of the islanders, perhaps through the advent of "off-islanders" intelligent enough to seize the advantages of a spot where a house, with considerable land about it, may be bought for one or two hundred dollars, and where the rapid growth of a summer population must create an enormous demand for market-garden products. But the time to see Nantucket is before this day arrives. Already the aspect of the town and of many parts of the shore has been grievously altered by the tourist throng; and when the savage simplicity of the interior shall have been softened beneath the plow, Nantucket will look a good deal like the rest of the world. To-day, when one turns his back upon the shore, it seems unique; and to an eye which can appreciate a landscape where almost all the conventional attributes of "natural beauty" are wanting, it seems uniquely attractive—or perhaps a better word would be, impressive. A splendid sky and the breath of a tearing wind tell us of the splendid sea, even when it lies out of sight. Seldom in civilized regions are we swayed by such a sense of breadth, vastness, freedom and the spontaneous action of elemental forces. Seldom do we see such beauty of color created with factors of such simplicity. And everywhere under our feet is the wide carpet of flowers and herbage in endless variety, in perpetual harmony and loveliness. The mainland is more picturesque; Montauk is grander; Block Island is more singular in surface conformation. But nowhere else on our coast is there so broad an expanse of uncultivated land, so simple as regards large features, so varied as regards those of minor size, so impressive in a general view, so interesting to the eye of minute examination.

M. G. van Rensselaer.

New York.

"The practice of leveling the surface has done much mischief both in park and pleasure ground. . . . When from any circumstance spare earth is to be disposed of in the pleasure ground, it is usually applied to the filling up of any hollows that may fortunately exist; whereas it should generally be used to increase any indications of undulating forms, as even the smallest variety of this kind is highly advantageous. It will be safer for the unpracticed eye to increase the existing varieties of the ground rather than to create new ones, the arrangement of earth for this latter purpose being an operation of considerable difficulty; whereas a moderate degree of caution cannot well fail in the former."—[W. S. Gilpin's "Practical Hints on Landscape Gardening," London, 1832.]

"Wherever Nature has herself glorified a country and made a picture bounded only by the horizon, as in many parts of Switzerland, Italy, Southern Germany, and even our own Silesia, I am strongly of the opinion that park-works are superfluous. It seems to me like painting a petty landscape in one corner of a beautiful Claude Lorraine. In such places we should content ourselves with laying out good roads to make the fine points more accessible, and here and there the cutting of a few trees to open vistas which nature has left closed. Around the house, however, we want a pleasant garden in a limited space and in contrast with the surrounding country. In such a garden we no longer seek the variety of nature, but rather convenience, agreeableness and beauty."—[Puckler-Muskau, 1834.]

Foreign Correspondence.

London Letter.

WE are now fairly advanced into mellow autumn, and the atmosphere of the horticultural world here is more than usually fruity. Little is talked about in matters horticultural except fruits. One hears of fruit-growing companies to be started and of fruit-growers' associations, while fruit conferences and fruit exhibitions are common in London and the provinces. We seem to have suddenly become aware that England is pre-eminently a fruit-growing land; that we have wasted millions in buying fruit from the foreigner; that thousands of men have lost, or rather neglected, opportunities in making bulky fortunes by fruit culture for market. Some enthusiasts go so far as to say that fruit-growing for profit is the only panacea for the depressed state of the farming interests in this country. Mr. Gladstone and other great men have pronounced in favor of extended fruit-farming, but even this does not appear to excite the stolid nature of the British farmer, who smiles mildly at the new "fads," and keeps on growing corn and meat as his fathers did before him. "Why allow Americans to send us the best Apples that the markets can supply, when we can grow fruit as fine as theirs?" This is one of the stock phrases of the promoters of fruit-growing companies, so that if anything really solid results from all the present excitement about fruit-farming, it will be a straight hit at Americans, who have taught us how to grow, how to select and how to pack Apples in order to reach our markets in as fine a condition almost as if just gathered from the trees. But Americans have nothing to fear from this passing fruit talk, at least for many years to come. It does very well to fill in a quiet interval, for nothing serious, I fear, will result from it, and when, next month, gardeners and others are engrossed in their Chrysanthemums, we shall hear little of fruit-farming except from the few who have real interests in the movement. The companies just started for fruit-farming are evidently believed in, for the Rothschilds and other great people have taken shares in them freely.

There previously had been some minor fruit exhibitions and conferences held at the Crystal Palace and other places, but the chief event in this way is now taking place in the garden of the Royal Horticultural Society at Chiswick. During all this week there has been a great gathering of those interested in fruit, fruit-nurserymen and private gardeners chiefly, very few actual fruit-growers for market. There is a very large exhibition of Apples and Pears, numbering over 5,000 dishes, the bulk of them very fine fruits, from all parts of England and Scotland. But you see there only a repetition of the large exhibition of Apples in 1883. The same collections of fifty sorts and so on; very fine examples, no doubt, of very fine varieties, but that is all. There is a great ado made about correct nomenclature, as it is loftily called, and little wrangles among gardeners about the proper names of such and such a variety are not infrequent. I will not attempt to detail the exhibition, as I know it would be of little interest to your readers. It is nothing but an exhibition, a fine show of the leading sorts of Apples grown by English gardeners for the gentleman's kitchen and table. I did not see one collection of sorts grown exclusively for market. There was not one exhibitor who sent a half a dozen sorts, and said: "These sorts are, in my opinion, the best to grow for the market. I live in Sussex; my soil is a deep loam resting on gravel; the situation is exposed and high, not subject to late frost." This is the kind of information that would be really useful, for you would get the opinion of a practical man from a given locality, and we should see the sorts he has selected as suited to his particular market. The same could be done in the case of selections for private gardens, which must necessarily be larger. It is acknowledged that we have far too many sorts of Apples; the lists of every large fruit-nurseryman are quite bewildering to the amateur who wishes to select a few of the best. What we

want to know is the process by which Americans found out that the Baldwin, the Newtown Pippin and other standard American Apples were the best for the market, and then see if we cannot find a selection to equal yours. I frequently have to make selections of fruits for new gardens, and I have sometimes been asked to plant nothing but American sorts of Apples, for "You know," say my clients, "there is no English Apple to come up to a Newtown Pippin or Baldwin," and it is hard to tell them that Apples cannot be grown in this country in such perfection as they can in the United States.

The papers read at the Chiswick Conference took a more practical turn than the exhibition, and some sound information was conveyed in them, as also in the discussions that followed the reading of each. All these papers will be collated in book-form and published by the Society, and which reminds me of the thorough way in which the reports of your leading horticultural societies are carried out. Let us hope that this present effort to establish fruit-farming in these islands will take root, and tend to make us more of a fruit-eating nation than we are at present. I was told the other day, by an American who has resided in England, that an American eats ten times as much fruit as an Englishman. *W. Goldring.*

London, October 20th, 1888.

New or Little Known Plants.

Rosa Nutkana.*

THE most showy of our western Roses, as well as the most clearly defined, with the exception of the delicate *Rosa gymnocarpa*, is the Nutka Rose. It has the largest flowers and the largest fruit of any of our species, and its armature is liable to become on occasion the most formidable.

It is frequent along the Pacific coast from the Alaskan peninsula to the Columbia River, where it was first collected by Menzies upon Vancouver's visit to that region, and somewhat later by Haenke at Nutka Sound. It ranges eastward from the coast through the mountains near the boundary to north-western Montana, and thence southward into Utah. It is rather stout in its habit, and with rather broad foliage, very rarely nearly spineless, usually armed with broad, flat spines at the base of the leaves, and occasionally, especially the young shoots, with scattered prickles. The spines are either straight or recurved, and sometimes they become larger even than they are represented in our figure, and very numerous. As usual in our Roses, the pubescence is very variable, the leaves being either per-

Fig. 70.—Rosa Nutkana.

*ROSA NUTKANA, Presl., Epimel. Bot., 203; Watson, Proc. Am. Acad., xx. 341.

fectly glabrous and bright green, or softly pubescent, and very frequently resinous-puberulent, in which case, as in other species, the teeth are usually also glandular-serrulate. The inflorescence is ordinarily wholly smooth, hispidness occurring but rarely on either the pedicels or any part of the flower. As in all the other species of that region, in distinction from most of those of the Rocky Mountains and the East, the sepals never have lateral appendages or lobes. The fruit is globose or somewhat depressed, of a bright scarlet, and often over half an inch in diameter.

Our figure has been drawn by Mr. Faxon from a plant grown at the Arnold Arboretum. *S. W.*

Cultural Department.

Vegetables in Frames.

AMONG the vegetables now in frames are Lettuces, Radishes, Parsley, Endive, Chives, Spinach, Dandelions and Sorrel. All frames containing these should occupy warm, sheltered places, with a full sunny exposure, and be so situated that snow or rain-water will readily run away from, rather than lodge about, them. The more sunny and sheltered the exposure, the better will the vegetables thrive and the less covering will they need to exclude frost. See that the frames are in good repair; that all parts fit properly and snugly; that no openings are left at the ends of the rafters or elsewhere in the frames for the searching winds of winter to find. And see that the sashes are well glazed. If they are not perfectly water-tight, take a sash-brush and some thick white paint and run along the sash-bars, so as to close up any apertures by the edges of the glass through which water may drip. Have the frames well banked around with earth or coal-ashes, or if you use manure or leaves, lay a board on top of these to keep them dry.

While it is well to have the ground in which these frame crops are growing moderately moist, it should not be kept soaking wet, as must be the case where frames have been left open to the recent incessant rains. Therefore put on the sashes in the event of wet or snowy weather, keeping them tilted up to afford abundant ventilation. When frosty weather comes the sashes may be shut down, for, while it is unwise to keep vegetables in frames close and warm, freezing them does them no good, and hard frost hurts them. Store-vegetables—like young Lettuces that are being kept for transplanting later into hot-beds—should not be protected from light frosts, for the hardier they are, the better they will keep till required for transplanting.

The best covering we can have for frames is straw mats and light wooden shutters. These mats are made of long, flail-threshed rye-straw and marline, and of a length and breadth to suit. We make ours four feet wide, seven feet long and three-quarters of an inch thick, running five times lengthwise with marline. So long as these mats are kept perfectly dry they are a capital protection against frost, but if wet, frost soon finds its way through them. Under light wooden shutters they can be kept quite dry, and two mats thick and a shutter over them is good enough protection in a sunny place against twenty-five degrees of frost. There is a current idea that a heavy shutter is a better protection against frost than a light one, but this is contrary to my experience. I like light wooden shutters, of half or five-eighths inch pine stock, tongued and grooved, and put together in white lead; or, if the stock is thoroughly dry and well seasoned when the shutters are being made, and the boards are put together as tight-fitting as possible, they will swell and become perfectly water-tight in damp, wintry weather. Three feet wide and seven feet long is a convenient size for use and to handle. Besides mats and shutters, we also use a good deal of sea-thatch for covering up our frames in winter.

It is now generally conceded that for Lettuces, Radishes and other vegetables which we wish to gather every day or two in winter, frames are but a clumsy device, and the alert market gardeners who supply New York City with winter salads are fully awake to this fact. In the neighborhood of Springfield, Jamaica and other parts of Queens County, the truck gardeners have abandoned the use of frames for winter salads and vegetables, and, instead, have erected large ranges of low roofed green-houses, in which they grow their crops with so much certainty and so little trouble, that they are not only able to hold their own against competition with the South, but they regard their green-house winter crops as the most profitable part of their gardening. Progressive florists, too, are using cool green-houses instead of frames, and they would not do this if it did not pay them. One large grower here is most emphatic in his opinion of the advantage and profit of green-houses over frames for winter work, and the multitude of frames he has cleared away recently, and the multitude of green-houses he has built in their places, is pretty clear proof of his confidence in houses. The vast amount of labor expended in covering and uncovering frames almost every day, the expense of the materials used as coverings, the very much greater wear and tear of frames than of green-houses, the inconvenience of cropping and gathering in widwinter, and the risk of losing a crop by close confinement in a long period of severe cold weather, are disadvantages well understood by practical men. No wonder, then, that the market gardeners and florists, whose bread depends upon their crops, are, on account of keen competition, obliged to give up the laborious, vexatious and unsatisfactory winter-frame for the green-house.

Glen Cove, N. Y. *William Falconer.*

Notes from an Amateur's Garden.

THE horticultural experiences of amateurs have usually very little interest for professional florists, who work under different conditions and with different objects. To other amateurs they may, however, be acceptable, even if somewhat trivial in character. From this point of view I offer some brief notices—fruits of my own experience.

Incarvillea Olgæ.—This plant was introduced from Turkestan by Dr. Regel, and has been much lauded by dealers. In this climate it is perfectly worthless. The flowers have a rose color and come out in slow succession, one opening after another has fallen. As flowers they do not compare for one moment with good Antirrhinums, far less with even ordinary Pentstemons. The plant is hardy here in Newport; its leaves are fine both in color and form, but its habit is bad, as it is not distinctly a vine but yet requires support. The sooner it disappears from the catalogues, the better. Possibly it might yield a valuable hybrid with *Tecoma radicans.*

Montbretia crocosmiæflora.—I find that this fine hybrid bulb is hardy in the light soil of my garden when well protected with leaves or straw. On comparing plants from four bulbs which had been kept all winter in sand in a cold-frame and well covered with leaves, with others which had been left in the open ground but protected as above, I could find no appreciable difference. The horticultural world owes Mr. Lemoine a debt of warm gratitude for the creation of this beautiful plant. Of the seedling varieties which I have seen, Gere d'Or is the finest, a fine, clear yellow replacing the rich vermilion-red of the parent flower. Then the plants yield seeds in the greatest abundance, though they do not always ripen well in our long, cold autumns.

Tritonia aurea.—This beautiful plant has not been rendered superfluous by the introduction of its hybrid progeny. It is not hardy here even with protection, but goes through the winter extremely well when taken up late in October, covered with dry sand, placed in a cold-frame and then covered well with leaves. It may be transplanted to the open border in May, by which time it will have made long, green shoots in abundance. It flowers profusely and for a long time. The other parent of Lemoine's hybrid, *Montbretia Pottsi*, goes through the winter here in the open ground when well covered with leaves. It is pretty, but I think not worth cultivation.

Lemoine's Hybrid Gladioli.—These also are perfectly hardy here when well protected with leaves or straw. My finest plants were grown in a mixture of pure sand and pure leaf mould without manure of any kind. Many stalks were five feet in height. I have begun to hybridize them with *G. Saundersii*, and hope in due time to communicate my results.

Hybrids between *G. Saundersii* and various forms of *G. Gandavensis* were some years ago produced by Mr. Max Leichtlin, but they have never, so far as I am aware, been offered for sale. Of quite a number which I received from Mr. Leichtlin, all but one gradually sickened and died. The one which remains, closely resembles the parent, *G. Saundersii*, but the petals are not reflexed. The flower is very large and fine, nearly or quite four inches from tip to tip of the expanded petals. It has recently been stated in the *London Garden* that these hybrids have also been taken up by Mr. Lemoine, and Mr. Leichtlin's name is not mentioned in connection with them.

Zephyranthes candida.—This very charming and desirable bulb is well known and requires no description in this place. The bulbs do not ripen in our cool autumn, but the plant remains fresh and green till far into November. I find that it

is only necessary to take up the clumps of green leaves and new bulbs, cover them well with sand and put them into a cold-frame well filled up afterward with leaves. In the spring the clumps are almost as fresh and green as when first put into the frame. Transplanted to the open border, they grow freely, and produce their pure white, lily-like flowers in great abundance from about the middle of August until they are again taken up, unless cut down by frost. Few bulbs make so many offsets. Clumps of *Zephyranthes candida* interspersed with Colchicums make very attractive beds. In the absence of other bulbs the clumps should be planted quite near each other, so that the fine green foliage may completely cover the ground.

Newport, R. I., October 20th. *W. G.*

Shall We Plant in Fall or in Spring?

THE proper season for planting trees and vines is a question on which people differ materally, some insisting that the fall is the very best time, and others advocate the spring with equal vehemence. Experience leads me to believe that the condition of soil and the subject to be planted has more to do with results than the particular season at which the work is done. Much of the loss is directly traceable to the treatment which the trees or plants receive during the interval from the time of their removal from the nursery until they are planted. I have seen evergreens lying on the ground during the noon hour, with roots exposed to the rays of a blazing sun and drying winds, and I have too often seen choice trees and plants similarly exposed while the so-called gardener was getting ready to set them. No wonder failure follows such treatment. In fact, Evergreens thus exposed had better be thrown on the brush-pile at once, to save the labor of setting and the vexation at the certain loss. The roots of trees and plants of all kinds should be exposed as little as possible and never allowed to become dry. This is especially true of trees and plants having fine fibrous roots, which soon wither and die of exposure in a dry atmosphere; fleshy and woody roots are not as susceptible, and will endure more exposure with less apparent injury.

Another serious cause of failure is the digging of trees and vines before the wood is sufficiently matured. Nurserymen anxious to commence operations in the fall sometimes yield to the importunities of customers and dig trees before the leaves have fallen, in which case they are generally stripped off by hand, entailing extra work. Such trees, especially Peach trees, are often killed if exposed during the winter. For this reason I prefer spring planting for the Peach, unless the trees can be dug and planted late in the fall, after they have fully matured. Fall planting, then, is quite as safe. Spring is, also, the best season for planting evergreens. It is well, in fall planting of trees or even vines, to raise a mound of earth about the trunk, and mulch with a little coarse manure. This course is especially applicable to vines or small plants with superficial roots, for these are much more apt to be lifted out by the action of the frost. The earthing up turns the rain and snow-water away from them, and on ground infested with mice it is a good protection against their attacks. The soluble portion of the manure finds its way to the roots, while the manure itself is a safeguard against the piercing winds and severe cold. This mound of earth should be leveled down in spring, and the manure replaced around the stem of the plant, to serve as a mulch, and keep the ground cool and moist.

This earthing up process is also a good support to the tree in preventing its being swayed about by the winds, although to keep trees erect till established they should be staked and tied. Another advantage of planting in autumn is that there is then less hurry and rush than there is in spring. The ground also can be worked in the fall into a condition not possible to reach in spring, because if it is so wet as to become packed and hard the action of the frost will disintegrate it, while soil in the same condition, and worked in spring, will not become mellow at all during summer. Wet and unfavorable weather in springs such as the last interferes with and often prevents contemplated planting, and hence it must go over till another season, and a year is lost, while if done in the fall a year is gained. Fall is the best season for purchasing, even if the stock is not planted, because, while the assortment is unbroken, the purchaser stands a much better chance of getting the varieties he wants.

In heeling in trees to be kept over for spring planting some sheltered spot should be chosen and care should be taken that the earth is well settled about the roots, leaving no air spaces. If any danger of injury threatens, a few evergreen boughs against the tops will greatly add to the security of the trees. The careful planter will take but few trees or plants at a time from the package, keeping their roots covered from sun and wind till the last one is in the ground. With due precautions in what may seem unimportant details, the percentage of failures would be hardly worth notice, let the work be done in autumn or spring. The anxiety and desire for quick results as an atonement for past neglect often induces the planter to get extra-sized trees, but unless such trees have been frequently transplanted and are well supplied with fine roots, time is never gained, and trees are often lost. The inexperienced and impatient are slow to learn this fact.

Montclair, N. J. *E. Williams.*

Nerine Fothergilli.—This is a gorgeous bulbous plant, and one that requires but a small amount of care and attention, while the fact of its flowering at this season, when so many summer-blooming plants are on the wane, is an additional merit. Many people fail to flower it in a satisfactory manner, but year after year at Baron Schroeder's it is, during the autumn, one of the most conspicuous features. One great cause of failure in the cultivation of these plants is that many people dry them off after flowering; whereas they really make their growth during the winter and early spring, and require all the light they can have at that season, instead of being placed underneath the stage in the vain hope of inducing them to go to rest. Where the plants are in good condition the beautiful, bright, rich vermilion-colored flowers will be now at their best, while the glaucous foliage is also effective. Besides the rich coloring of the blooms, they appear overspread with a lustre like frosted gold, which is remarkably striking. The soil best suited for this Nerine is good, fibrous, rather heavy loam, with a little leaf-mould and a liberal admixture of silver sand. These plants dislike being disturbed at the roots, so that they should not be potted unless it is absolutely necessary. Thorough drainage is essential to their well-doing. In the case of plants that are now flowering, they should, when the blooms are over, be still kept in the green-house in as light a position as possible, where they may be allowed to stand till about next May, by which time they will be in quite a dormant condition. If they have been well exposed to the light, the bulbs will be plump and hard. Then a very good plan is to turn them out-of-doors and stand them where they will be fully exposed to the sun, such as at the foot of a south wall or in a narrow border in front of a glass structure. Wherever they are put, care must be taken that worms do not enter the pots, for they will play great havoc with the plants, not only destroying the drainage, but also making the soil in such a state that it is absolutely necessary to repot, and this considerably lessens the chance of the bulbs flowering. If they are roasted up in a sunny spot, and only watered about once a fortnight, they will by about the end of July commence to push up their flower-spikes, when they should be taken into the green-house or a cold-frame, and those that are showing flower must be from that time watered when necessary. If the spikes are not visible the plants are better if kept dry for a little longer, and if watered too freely before the blooms are seen, a large crop of leaves often results at the expense of the flower. The major variety of *Nerine Fothergilli* is the largest and most imposing of the genus, but all are very beautiful, and well worthy of a little special care and attention.—*The London Garden.*

Soil for Roses.—If not already attended to, it should be borne in mind that a good supply of soil will be necessary for next year's operations in the Rose houses, and that now is the time to secure it, for when stacked up at this season and allowed to remain until needed for use next June or July, it will be found in the best condition for working. The soil, for this purpose, should be a good loam of medium consistency, such as is usually found in an old pasture, from which a layer may be taken about as thick as a spade will cut, including the sod. By medium consistency is meant a loam, not very sandy, nor yet entirely composed of clay. When it is too stiff it requires more preparation to fit it for successful Rose culture, and, also, more careful applications of water and of fertilizers. The sod for this supply should be stacked up in a neat pile, about four feet in height, with some good, short stable manure, in the proportion of one load to six of sod, the latter being placed grass side down, so as to assist the process of disintegration. Rose-growers differ as to the best manure to use for this purpose; but probably a majority are in favor of using that composed of equal parts of horse and cow manure, besides which, many add a small proportion of good bone-meal to the compost, before taking it into the Rose houses.

In some of our large cities, where florists have no sod at command, they resort to somewhat different methods, for while their compost heap may be similarly constructed, they also utilize their old soil by seeding it with grass, so as to prepare a sod for future use. This mode of procedure seems to have some disadvantages. One is, that it must necessarily take a considerable time for this partially exhausted or soured soil to regain its former good qualities; a second and more serious one is, that when the old soil has been taken out of a house infested with the Rose bug (*Aramigus Fulleri*), there is some danger of increasing and perpetuating this formidable pest, from the fact that it has not been positively demonstrated that its larvæ are destroyed by frost, and, therefore, it would seem to be decidedly the safest plan to use only new soil for the Rose bed.

Some experiments have been made to test the hardiness of the Rose bug, but, so far, the result has not been conclusive, and it is understood that further experiments will be made during the coming winter, so that another year will furnish us with more definite knowledge on this point. *W.*

Philadelphia.

Out-Door Roses.—An Indiana correspondent writes about these as follows: Mrs. John Laing is really a very fine Rose, equal to American Beauty in the number of blossoms it bears, and the average is better in quality. American Beauty is very fine, if budded, but does not succeed with me on its own roots. Lady Helen Stewart and Earl Dufferin have the merit of growing well, but neither of them blossomed with me this season, although they were large plants when set out last spring.

Folkstone comes nearer to La France, as a bedder, than any other hybrid Tea; I like it very much. Puritan, as a failure, is fully equal to Her Majesty. I have tried it now for the second season, and have not yet had one perfect Rose from it. I did not get one perfect bloom on Her Majesty in three years. Nearly all Roses do better for me if budded—that is, if they are budded low, say within three inches of the crown of roots. I have just finished planting fifty newly purchased kinds, most of them being budded; but in more than half of them the bud was at least six inches above the root. As I always, in planting, set the bud three or four inches below the surface of the ground, it will be almost impossible to set the roots of these in good soil.

Orchid Notes.—The most beautiful in bloom now, as the season opens, is *Vanda cærulea*, with erect scapes, and flowers of a pallid blue. The flower stalk is two feet long and bears from fifteen to twenty flowers. *Vanda Sanderiana* wears a different appearance, having fine, bold flowers from four to five inches in diameter, which last in bloom about six weeks. Cypripediums are out now in great force; the most beautiful at present in bloom are the following: *Cypripedium Parishii, C. Stonei, C. calophyllum, C. tonsum, C. Harrisianum, C. Fairrieanum, C. Spicerianum, C. Haynaldianum, C. marmorophyllum, C. Sedeni, C. vexillarium, C. conchiferum, C. purpuratum* (Kimball's variety); *C. Sedeni candidulum, C. Roezlii, C. Lawrenceanum, C. obscurum. C. Spicerianum* I consider the most beautiful of the lot and the most useful, though *C. vexillarium* is a great favorite of mine, and if it were more abundant, it would make a spirited rivalry for the first place. *C. Fairrieanum* is a little gem and worth more than its weight in gold, not more than six being in this country. *Renanthera Lowii* (or *Vanda Lowii*), a very rare Orchid, is now in bloom, its long flower spike holding from forty to sixty blooms. This is a remarkable plant, having two dissimilar forms of flower on the same spike—that is, the two flowers at the base of the spike are of a different color from that of the others—which strange contrast gives it a distinct value.

There are a great many other Orchids in bloom in the way of Cattleyas, Epidendrums, Oncidiums, Zygopetalums, Pleiones, or Indian Crocus, Dendrobiums, and quite a number of botanical curiosities that are very pretty.

Oncidium iridifolium is one of the smallest and also one of the rarest; a beautiful dwarf, about two inches in height, resembling a small Iris in growth, with bright, large, yellow flowers.

Rochester, N. Y., October 30th. *Geo. Savage.*

Fig. 71.—Spiræa trilobata.—See page 453.

Two Beautiful Stove Bulbs have been in flower lately in the Palm house at Kew, and both deserve attention in private gardens. One is the Ceylon Crinum (*C. Zeylanicum*), a robust looking plant, with a big bulb and long channeled leaves. Its stout flower-stem bears about half a dozen lovely blossoms, with the white petals having a broad crimson band running down the middle of each. Being large, the cluster is very showy, and lasts a long time before fading. The other bulb is *Pancratium speciosum*, than which no flower could be more lovely or more fragrant. It is also a large plant, with broad, luxuriant-looking, evergreen leaves. The flower clusters rise above the foliage, each stem bearing several snow-white blossoms, with long, narrow petals and a web-like cup in the centre. Both plants are easily grown in a

stove, and may be readily obtained from nurseries. It is a pity that plants like these, possessing such wondrous flower-beauty, should be neglected for the sake of novelties not half so beautiful.—*The London Garden.*

Plant Notes.

Spiræa trilobata.

Spiræa trilobata, of which a flowering branch appears in our illustration on page 452 of this issue, has been cultivated in gardens since the very first years of the century. When the graceful, pendulous branches which sweep the ground are wreathed in early June with their clusters of white flowers, few plants are more beautiful or more generally admired. It is a wide-spreading, open bush, which is rarely more than three or four feet high; and it is one of the very best shrubs which can be used on the margins of a shrubbery to connect taller plants with the grass of the lawn.

Spiræa trilobata is a widely distributed plant, being found in Turkestan, Siberia, Mongolia and northern China. It is one of the very few plants which will not be out of place in any collection of shrubs, or in any garden.

Notes from the Arnold Arboretum.

THE most beautiful plant now in this collection, so far as its fruit is concerned, is *Lycium Chinense*, a Chinese species with semi-prostrate or vine-like branches, eight or ten feet long. From these spring, at nearly right angles, rigid, lateral branches, one or two feet long, and these are fairly loaded with bright scarlet, oblong fruits, about half an inch long, contrasting finely with the leaves, which are still bright green and shining. The end of each main branch is, as it were, a broad and leafy raceme, two or three feet long, of brilliant fruit. The fruit and the leaves remain upon this plant until destroyed by really hard freezing. Among fruits which are ornamental at this season of the year should be mentioned forms of one of the Asiatic Apples, *Pyrus prunifolia*, one of the parents, most authors affirm, of the so-called Siberian Crabs. The fruit of *Pyrus prunifolia* is golden yellow on some plants, and bright scarlet upon others. It is an inch or two in diameter, and hangs upon the branches long after the leaves have fallen, retaining its form and its brilliant colors well into the winter. This species, or its varieties—for the so-called ornamental Apples are so changed by long cultivation, and perhaps by the crossing of the different species and varieties, that it is rarely possible to find exactly the wild type of any of them—is far more ornamental in fruit than the more commonly cultivated varieties of *P. baccata*, the fruit of which, distinguished by the deciduous calyx, is smaller, and less persistent upon the branches. The foliage of the Asiatic Apples falls early and without change of color, so that it is for their flowers rather than for autumn effects that these plants are really valuable. But one of the Asiatic Pears, *Pyrus Sinensis*, often known as the Sand Pear, is not surpassed by any other tree in the deep rich scarlet and purple tones of its autumn leaves. This is a plant of excellent habit and rapid growth; it is beautiful when in flower; the fruit has considerable value for culinary purposes, and the leaves turn more beautifully in the autumn than those of any other fruit-tree which I can now recall. It is a tree, therefore, which might well be seen in gardens more generally than it is at present. Another eastern Asia Pear, *P. betulifolia*, loses its silvery white leaves early, and without any change of color.

Few Spiræas are valuable on account of the colors of their autumn foliage. Many of the species, especially the European and Siberian, lose their leaves early; but *S. prunifolia*, of which only the double flowered variety is known to botanists or in gardens, one of the least attractive of the entire genus, both in habit and in its flowers, is now beautiful in the brilliant orange and scarlet of its autumn dress. *Spiræa Thunbergii* is still green, but its leaves will turn to rich colors at the end of another week or two. This is almost the very latest to change of the shrubs which take on bright autumn colors, just as it is one of the very earliest of all shrubs to put forth its leaves in the spring, and among the earliest to flower. Few shrubs, all things considered, are more beautiful than this Japanese Spiræa, and few can boast of more good qualities. Here its only fault is found in the fact that the ends of the branches are sometimes killed back in severe winters.

Among European shrubs, none assume such attractive colors in autumn as do some forms of the common Spindle tree (*Euonymus Europæus*), although in the richness, or, rather, in the depth of its autumn tints, their American congener (*E. atropurpureus*) surpasses them. Much more beautiful, however, than either the European or the American species in this respect, is the Japanese *E. alata*. Forms of this plant vary here; but there is one in the collection upon which the leaves assume in autumn a clear, rose-pink color, which resembles that of no other plant I can recall, and which makes it one of the most interesting shrubs that can be grown, wherever attention is paid in planting to autumnal effects. The fruit, however, is small, and not to be compared in brilliancy or in beauty with that of the European plants, which are conspicuous objects in the shrubbery through the autumn and early winter months.

We spoke, when the plants were in flower, of the beauty of a Japanese Cherry, *Prunus Pseudo Cerasus*. Its value as an ornamental plant is heightened by the fact that its leaves turn at this season here to orange and scarlet. Among small trees of comparatively recent introduction into our gardens not one gives better promise of real ornamental value. A feeble growth and not particularly good habit are the only drawbacks in this plant, and these are compensated for by its abundant flowers and handsome foliage.

The Japanese Maples are certainly at their best in the autumn, when the colors which some species take on are almost unsurpassed. On the whole, Japanese Maples cannot be considered a great success in cultivation here. Occasionally a fairly good specimen of *Acer polymorphum* or *Acer Japonicum* may be seen, but none of the race seem possessed of very robust constitution, and all of them, although hardy enough as regards cold, are apt to perish suddenly, or branch by branch, without any apparent cause, during the summer. The nearer the plants approach the types of the species, the more saitsfactory they seem to be, and the green-leaved and the purple-leaved *A. polymorphum* are more reliable here than any of the abnormal forms of this species, and of *A. Japonicum*, which Japanese gardeners have been collecting and perpetuating for centuries. But Japanese Maples are such really beautiful objects at this season of the year, that one is tempted to recommend their more general use in gardens, in spite of all the disappointments which have followed their cultivation, and of the miserable sun-burned appearance many of the varieties present before the autumn kindles their color into a blaze. A week of such beauty may well compensate for many disappointments.

Few Maples turn more beautifully than the shrub-like Manchurian form of *Acer Tartaricum*, which is sometimes known as *Acer Ginnala;* but it has the serious defect of losing its leaves early and before most other plants have made their finest autumn show.

There is great difference in the behavior of the various species of Lilac in autumn. The leaves of the common Lilac never change color at all, but remain green until very late and then turn black and fall. The Persian Lilac behaves in the same way, while the leaves of *S. Chinensis* turn to a pale yellow, without beauty. The leaves of *S. Japonica* and *S. Amurensis* fall early in October and without changing color, and this is certainly a defect in these plants as garden ornaments. *S. villosa* behaves in the same way, although the leaves persist a few days longer than upon the two species just referred to. The leaves of *S. Pekinensis* remain much later upon the plant, and then turn a light, but not very clear yellow. The leathery leaves of *S. oblata*, the only Lilac worth consideration for the autumn coloring of its foliage, are still green. A little later they will turn to a deep rich claret color of unsurpassed beauty.

Female plants of the Black Alder, *Ilex* (*Prinos*) *verticillata*, are now conspicuous objects, covered with their bright red fruits. There is a plant in this collection with yellow fruit, but this is less showy than the common forms, and hardly worth cultivating except as a curiosity. The leaves of the Black Alder turn black before they fall, and without any previous change of color, while on an allied and comparatively rare species, *Ilex lævigata*, which may be most readily distinguished by its stalked fruit, the autumn coloring of the leaves is bright yellow. These two Hollies are well worth general cultivation for the beauty of their fruits. They will thrive, although swamp plants, in any ordinary garden soil.

Some of our native Viburnums are worthy of mention at this time. The most conspicuous, perhaps, although its foliage, having first turned orange and scarlet, has now nearly all gone, is the cosmopolitan *V. Opulus*, the most showy of the genus in fruit, which is large and bright red, remaining for many weeks upon the branches until devoured by birds, who seem to attack it only when other food becomes scarce. The broad and handsome leaves of *V. dentatum*, one of the most ornamental species of the genus in habit, foliage, flowers and

fruit, are now dark bronzy red upon the lower parts of the branches, while those nearer the ends are still green and lustrous. *V. nudum* and *V. cassinoides* are both beautiful in the autumn, their deep green leaves first shading into purple, and then turning to the color of claret wine. *V. Lentago* and *V. prunifolium* are handsome objects, too, at this season of the year, when their leaves have turned from bright green to orange and purple.

There is a great difference in the behavior of the different Roses in regard to the change of foliage. Most Old World species lose their leaves without any change of color at all. *Rosa rugosa* is an exception to this rule. *Rosa spinosissima*, the Scotch Rose, is another, although the colors which its leaves assume in the autumn are not very striking. The species which inhabit western North America lose their leaves without any change of color, while those peculiar to the eastern part of the continent change more or less brilliantly. *R. nitida* and *R. lucida* surpass them all, and there are few shrubs upon which the autumn foliage is more persistent or more beautiful than upon these two Roses. Masses of them, covered with ripe fruit, and fairly glowing with the deep tints of their leaves, are not surpassed just now in brilliancy by any plants in the Arboretum.

The foliage covering the long, wand-like branches of *Andromeda Mariana* is intensely scarlet, while that of *Leucothöe racemosa* is not less attractive, although a large proportion of green is still seen among the shades of red, which in a few days will make this one of the most beautiful of our native shrubs.

It is worth noting, perhaps, that the leaves of *Quercus dentata*, a species of eastern Asia, of much promise here as an ornamental tree, turn bright orange and scarlet, not a very common combination of autumn colors among Oaks; that while our North American Yellow-wood (*Cladastris tinctoria*) is a beautiful object in the autumn, from the bright, warm yellow of its leaves, the eastern Asia representative of this genus loses its leaves fully two weeks earlier without any change of color; and that among the Larches the most beautiful in autumn coloring is the Japanese *Larix leptolepis*, upon which the leaves are now a clear canary-yellow, and much brighter than those of either the American or the European species. The leaves of *Pseudolarix*, one of the hardiest and most beautiful of exotic Conifers, turn to a deep orange hue in the autumn. They fell from the trees, however, several days ago.

October 29th. *J.*

The Forest.

European Forest Management.

WE hear much reference to the excellent forest management prevailing in European countries, and on the other hand, the statement that the application of such management would be impracticable with us, and that we cannot learn much, if anything, from European practice. Both statements, I fear, are mostly made without definite knowledge of the subject and without proper consideration. It would be of interest, therefore, to briefly state what the principal features of European forest management are, and wherein its introduction is unsuitable to our conditions.

We shall have to discern between forest management by the state and by individual owners. The former, which attempts, and, to some extent, represents, an ideal forest management, is carried on upon considerations of the general welfare, of continuity and regularity in material supplies, and upon other considerations of national economy; while the private forest management, imitating mostly the methods of the state forester, works mainly for the highest profits, and only to a limited extent recognizes the desirability of a regular and continuous revenue from the forest. Of course forest management is differently developed in the various states and portions of the same state, according to the general development of the country and its local needs. While in north-eastern Prussia, where forest land abounds and population is not very dense, the management is more or less crude, in the western parts a careful and intensive working of the forest takes place. In general we may say that in Germany, and especially in Prussia, Bavaria and Saxony, the science of forestry is the most highly developed.

The essential features of a well regulated forest management, and the principles underlying European, especially German, state forestry, may be briefly stated as follows:

1. Forestry is regarded as much a business as agriculture; it means the growing of a wood crop.

2. A proper economy in a densely populated country requires that all the agriculturally valuable soil should be, as far as possible, turned to agricultural use; the wood crop is, therefore, the crop with which to utilize the poorer soils; agricultural lands devoted to forest growth are becoming a rarity.

3. A proper economy requires that every portion of the land be made productive; therefore, when the crop is utilized, a new crop is planted or its natural reproduction is secured.

4. Different timbers have a different capacity for reproducing themselves naturally; the natural reproduction is therefore either encouraged or artificially supplied; the reproduction is expected either by sprouts from the stump (coppice), which method is resorted to, however, only for the production of smaller sizes for fire-wood and tan-bark; or it is expected from the seed, when proper preparative cuttings in the old timber must be made, and after the young plants have come up, light and air must be gradually given them by removing the old growth; or, thirdly, after the old growth is removed (clearing) the new crop is sown or planted—generally the latter.

5. Mixed plantations, especially of Conifers, as dominant growth mixed with deciduous trees, have the preference, in planting, for various reasons which it would take too long to discuss here; experience has shown which are the proper mixtures, the rapidity of height-growth and the varying capacity of shade or light endurance possessed by the different trees being the criterion in their choice for mixture. Close planting is practiced, because the shading of the soil, which prevents evaporation, is of prime importance, and because in a close growth, within limits, the trees grow more rapidly in height, or, at least, straighter, forming clean boles, and are not so apt to spread into branches.

6. But few trees—not more than ten or twelve—are predominantly used in German forestry; Pine, Spruce, Fir, Beech and Oak, one species of each, being the principal ones. Contrary to statements made by various writers, the bulk of the German forests—probably fully two-thirds of them—consist of Conifers, and the planting mainly concerns itself with Pine and Spruce. Beech groves are usually reproduced by natural seeding, or more rarely by planting in bunches; Oak is introduced by sowing the acorns or by planting one to three-year-old plants on deeply cultivated plats; on better soils larger plants are used, and for tan-bark coppices often the roots alone are planted. For Pine, the rule is to clear small strips, followed by planting with one and two-year-old (not transplanted) seedlings, after cultivation with the plow and subsoil plow or simple preparation of the soil by the hoe. For the Spruce, also, clearing in moderately wide strips, with subsequent planting, is the rule; but sometimes the reproduction is by natural seeding. For planting Spruce, transplanted plants or else bunches of from three to six plants in a bunch are used—the latter method, however, is losing ground. Larches are planted only as single individuals in intermixture, never in pure growths or clumps, as when so planted, it has been observed that they fail and are apt to die early. The other woods are generally used in admixtures, but occasionally in pure growths on special sites, as, for instance, the Alder in overflowed swamps and the Birch on safety strips along railroads.

7. In the management of the crop, thinning out is the principal operation. Cultivation with the plow to subdue weeds, etc., is rarely resorted to. This thinning is done first when the crop is eight or ten years old, and is then periodically or annually repeated. Farmers get their fire-wood by these thinnings. The object of the thinning is to give more light to the crowns of the remaining trees, in order to stimulate diameter-growth after they have attained a good height-growth. The thinning must never be so severe that the soil is deprived of shade for any length of time. Sometimes when too many trees have been cut out, or under certain other circumstances, it becomes necessary to put in an undergrowth (underplanting) for the purpose of shading the soil; the cleaning out of undergrowth—shrubbery, not weeds—practiced sometimes in this country, is a useless if not an injurious proceeding.

8. The annual crop is composed of the annual layers of wood which the trees form each year. As these cannot be harvested, an accumulation of many of them, that is to say, trees of proper size fit for use, are cut, while the younger ones remain to grow on. On large forest areas it is desirable to have annually, or at least periodically, the same amount of cut or revenue. In the state forests, therefore, and those of large estates, these amounts are as much as possible equalized from year to year, or at least from period to period. The ideal equalization may be conceived in this wise. Assuming that the most profitable growth is attained in 100 years, as

may be the case with a White Pine forest, and we have 1,000 acres under management, then we might cut every year ten acres of 100-year-old wood, or periodically during every period of ten years, 100 acres of such wood. After the forest has been brought under this kind of management (which theoretically would require 100 years, although in practice the process is much modified) we should then have a forest consisting of 100 sections of ten acres each, from one to 100 years old, each differing by one year of age, or if periodically treated, ten sections of 100 acres, each differing by an average age of ten years.

If reproduction from seed is expected, we might cull over even a larger area, making our periods longer. But this culling differs from that practiced in this country. Instead of taking out the best trees first, leaving the inferior or less valuable ones, the culling is done entirely with a view of securing a good new growth, and takes the inferior material first; the best trees are rather left to provide the seed and to gain in proportions, making the most valuable material after they are thus exposed to increased light influence, and they are removed only as the young after-growth requires. The adjustment is practically very much more complicated, since in the same forest area some timbers on certain soils will come to their best production earlier or later than the general period of rotation, assumed at 100 years. The small owner, of course, utilizes his crop when it is at the most profitable age financially, and this varies greatly in different localities; but he looks to its proper reproduction by cutting, so as to secure a vigorous young growth from natural seeding or sprouts, or by replanting after the clearing.

9. Neither the firing of the woods or the browsing of cattle in young growths is considered advantageous to the wood crop and strict regulations in this respect are enforced with good effect.

10. The age at which the crop is utilized differs greatly, according to the use to which it is put, the climate and soil on which it is grown and the kind of trees of which it is composed, and the need and profitableness of the market. The coppice is cut in rotations of ten to thirty years, sometimes even forty years; the longest rotations prevail in Alder and Birch forests in the eastern (colder) provinces. For Beech, which forms the most valuable dominant growth of broad-leaved trees, in the timber forest 90 to 120 years are required, the longer rotation in the mountainous localities and in the eastern (colder) provinces. For Pine and Spruce a rotation of from 60 to 120 years prevails (mostly 80 to 100 years), the longest period for the better soils of the eastern provinces, which are capable of producing good building timber. Alder and Birch in the timber forest will be cut in forty to sixty year rotation, and Oak, which is rarely found in pure or extensive growths, but is grown as prominent admixture, is kept over for 140 to 160 years; if "undergrown" in time, sometimes 120 years will produce the desirable sizes and qualities. For tan-bark coppice, it is cut in rotations of ten to fifteen years.

11. Coppice management is practiced in small wood lots and on thin soils, while in protective forests in high, exposed mountain districts a management of culling (or selection) is the rule. The State forests are, as much as possible, managed as timber forest, while small forest owners prefer a combination of timber forest and coppice called "middlewald," which we may render into "standard coppice." In some localities the communities or small owners practice a combination of forest growing and agriculture. After the forest is cut the ground is, for a few years, utilized for agricultural crops, before or even while being replanted to forest; and the economy of this system, with its good results, if properly carried on, will recommend it to our forest growing farmers.

If it is asked, "Is forest growing profitable in Europe?" the answer must be, "It depends;" it depends on what is called profitable and upon the situation. Considering that the European forests are now pretty nearly culled of all their virgin timber and are relegated to the poor soils and waste places, they are probably profitable enough investments.

The German forests, for which pretty reliable data are at hand, yield an annual net dividend of $57,000,000 from 34,000,000 acres of forest reserve, being considered a three per cent. investment, the soil being valued at $400,000,000 and the standing wood capital, from which the interest is drawn annually, at $1,600,000,000. Over a million men find useful and steady occupation during part of the year, at least, and the soil is utilized to its best advantage, with security against the ills of disturbed climatic and hydrologic conditions. Surely, to the nation, forestry is profitable, whatever it may be to the single individual.

B. E. Fernow.

Washington, D. C.

Horticultural Exhibitions.

The New York Chrysanthemum Show.

THE experiment of holding this exhibition in a large tent has proved successful in furnishing a better and more evenly distributed light than that found in any of the halls which the New York Horticultural Society has used for the purpose in former years. Besides this, the plants and flowers retain their freshness longer under the cool and well ventilated tent than in the close, dry air of a hall. This is especially true of the cut Roses, which were displayed in considerable numbers and were of the best quality. All the standard varieties were exhibited by Mr. John N. May and Mr. J. H. Taylor, together with the newer favorites, like the Bride, American Beauty and Madame de Watteville.

The display of single cut Chrysanthemum blooms was much superior to anything of the kind ever seen in this city, and, perhaps, the fifty flowers shown by Wm. Tricker, gardener to Judge Benedict, of Staten Island, were the best that have ever been exhibited in this country. This collection was largely made up of American seedlings, many of them comparatively new, and after examining them one could well believe, with Mr. Robert Craig, that the best twelve American seedlings of last year were superior to the best twelve originated in England or France. Mr. Tricker's collection, which won the first prize in competition with another remarkably good one shown by Mr. J. H. Spalding, of Orange, New Jersey, gained much in popular interest from the fact that every flower was plainly labeled. Near these choice specimen blooms was a large collection of Chrysanthemums, cut with long stems and arranged in vases by Mr. John Henderson. They were not entered for competition, but they attracted much attention on account of their fine quality, and gave a striking illustration of what can be accomplished with good garden varieties under good garden cultivation only.

Among the cut flowers were many fine seedlings, but very few were sufficiently distinct to deserve mention as improvements on existing varieties. The beautiful silver cup offered by Mrs. Andrew Carnegie for the best American seedling, was properly awarded to a splendid variety named after her, and shown by Wm. Hamilton, of Allegheny City. The head is of great size, the upper side of the incurved florets being a very dark crimson, and the lower surface of the same color near the base, but turning to "old gold" at the tip. The stock of this plant is owned by Mr. John Thorpe, from whose collection Mr. Hamilton secured the seed. Another fine seedling is Mrs. Levi P. Morton, now owned by Mr. Robert Craig, of Philadelphia, but raised by Mr. Thomas Jones, of Short Hills. It is rosy pink with an open centre and about nine inches in diameter. The florets are tubular at the base, and as they are white on the under side, a distinct zone of white surrounds the disc, which, together with the graceful arrangement of the slightly incurved rays, make a most attractive novelty.

Of the new Chrysanthemums of foreign origin, the one named Mrs. Alpheus Hardy excites the greatest interest. It is exhibited by Messrs. Pitcher & Manda, of Short Hills, New Jersey. It has somewhat changed from its form last year, the hair-like growths on the florets being more thickly set and downy than in the specimen from which the illustration in the first number of this journal was taken. The head seems frosted over with glittering white, and altogether in form and finish it is the most striking variation from old types of the Chrysanthemum that has been produced for years.

Very interesting, too, was a group of nine specimen blooms sent by E. Fewkes & Son, of Newton Highlands, Massachusetts. These varieties came from Japan in the same collection with Mrs. Alpheus Hardy, and they all have distinct merit. One of them, Kioto, is a fine yellow, belonging to the incurved section, but with florets whorled and coiled in a novel way. Medusa, another, has long white petals, so narrow that they can almost be called thread-like, which hang in a disheveled way that certainly is not beautiful. The value of this variety, however, lies in the fact that it is another break into a decidedly novel form, and it therefore gives promise of usefulness in originating a new and distinct strain when crossed with other varieties.

The specimen plants, particularly those which were tied and tortured into artificial shapes, were, as a rule, inferior. Only one or two of the so-called standards had any real beauty. The plants naturally grown, like the half dozen for which Mr. Thorpe received a prize, were altogether more attractive. Those plants, too, which were rooted in summer and carried a single bloom upon stems from one to two feet high, were particularly fine. Any one of them, of average merit, would have been considered a marvel five years ago.

Besides the exhibitors named above, Peter Henderson, Geo. Maclure, John Dallas, of Fairfield, Connecticut, and E. Asmus received prizes. A special prize for a group of Orchids, among which were fine specimens of *Catasetum Bungarothii* and *Cypripedium Spicerianum* was awarded to Messrs. Pitcher & Manda.

The Germantown Exhibition.

A MOST successful exhibition of Chrysanthemums was held in Germantown on the 8th and 9th instant, an ample fund for premiums having been provided by the patrons of horticulture residing there. Parker's Hall was crowded with plants of the best quality. As a rule, they were not so massive as those seen at the shows in Philadelphia, but they were all well grown. Michael Sammon, gardener to Mr. J. M. Shoemaker, contributed three plants, each of which measured four feet across and were perfect in every way. The varieties were Source d'Or, Duchess and Puritan, and the last named carried 450 expanded flowers. The collection of twelve plants, which took the first prize, consisted of General Anderson, Purple King, Shakspere, Bend d'Or, Cullingfordi, Christmas Eve, Gloriosum, Mrs. G. W. Bullock, Duchess, Mrs. Frank Thompson, Dr. Sharpe and Tokio. They were shown by W. Beasley, gardener to Mr. Benjamin Homer, and they were remarkable for their perfect foliage from top to bottom, as well as for general good culture. Of the numerous seedlings, few, if any, could be considered improvements upon varieties already grown, but two unnamed ones deserve mention. One was in the fine collection of Robert Carey, gardener to Mr. Thos. C. Price, and the second was in that of John McCleary, gardener to Mr. W. Weightman. Both flowers belonged to the Japanese class, the first being pure white and the other yellow. For cut flowers, the first prize was awarded to Joseph Shaw, gardener to Mr. J. Campbell Harris. In the competition open to nurserymen and florists, the principal premiums were awarded to Thomas Meehan & Son and Woltemate Brothers.

J. M.

The Flower Show at Orange, New Jersey.

THE regular fall exhibition of the New Jersey Floricultural Society was held last week at the Rink in Orange, New Jersey, and, as usual, it was noteworthy for the excellent quality of the plants displayed. There was an abundance of Palms, Ferns, Crotons, Marantas, and the like, which were grouped with much taste and skill. The collection of Orchids from the nurseries of Messrs. Pitcher & Manda was unusually rich and varied, containing no less than fifty varieties of Cypripediums alone. The Chrysanthemums in all the classes were the best ever exhibited by the society. The plants trained as standards were commended by the judges as superior to any which have been shown this year. As this was the first exhibition this year of the Chrysanthemum, Mrs. Alpheus Hardy, the flower proved one of the chief attractions of the show and was constantly surrounded by enthusiastic admirers.

The principal prizes were taken by J. Crosby Brown, Geo. J. Ferry. William Barr, E. P. Wilbur, of South Bethlehem, Pennsylvania, Messrs. Pitcher & Manda and John N. May.

Some fine clusters of Niagara and Brighton Grapes were shown by E. & J. C. Williams, of Montclair, New Jersey.

Notes.

A forest fire raged for nearly three weeks in October among the mountains of Santa Clara and Santa Cruz Counties, California.

The proceedings of the Convention of the Society of American Florists, held in New York last August, have been promptly published, and make an instructive volume of nearly 200 pages.

We are sorry to say that the news has just come from St. Petersburg of the death, at Tashkend, of General Prejevalsky, the famous geographer and explorer of Central Asia, to whose proposed expedition into the heart of Thibet reference was made in these columns a few weeks ago.

Experiments at the Amherst College Station indicate that a wash of Portland cement, of the consistency of common paint, will adhere to the bark of young trees during winter, and when mixed with Paris green, will serve as a protection against mice.

Mr. John Thorpe states in *The American Garden* that out of 385 seedling Chrysanthemums raised by him this year, thirty-seven had bloomed before October 18th, and not a single one was worth keeping. The seeds were saved from the best varieties, and yet he can hardly expect five flowers of superior quality, and will be satisfied if he secures a single one that is a real acquisition.

A curious development of *Lapageria alba* is noted in *The Garden*, of London. A large plant in the green-house at Arundel sent up this year a long shoot from the ground which terminated in a close, umbel-like cluster of more than twenty flowers. The same paper describes a Fig-tree of the Brown Turkey variety, growing at Kingdon Hall, which covers the wall to a height of eighteen feet, and extends fifty-four feet in a lateral direction. It annually bears and ripens a large crop of fruit.

The National Chrysanthemum Society of England has just issued a new catalogue—the third prepared under its direction. It forms a volume of sixty-five closely-printed pages, exclusive of the preface, and includes a historical account of the Chrysanthemum and its introduction into culture. About 2,000 species and varieties are named and described, although novelties of this year's introduction were excluded, as their title to be considered distinct varieties needs further establishment.

The late Professor Edward Tuckerman left a valuable collection of books and papers relating to Lichens to the library of Amherst College, where it will be kept separate from the other collections as a memorial of the donor. The librarian of the college, Mr. W. T. Fletcher, wishes it to be known that supplementary contributions to the collection will be welcomed. And he is in hopes that a fund may be secured to maintain it by additions and repairs. About $1,000 would suffice for the purpose. Professor Tuckerman's collection of Lichens, unrivaled in North American species, and containing, of course, all his own types, has been acquired by Harvard College through the efforts of our associate, Professor Farlow.

At the Iowa Experiment Station some interesting observations have been made on the different varieties of Indian Corn, from which the conclusion is drawn that those which have a large number of blades on the points of the husks are the more fruitful, probably because this extra leaf surface enables them to assimilate a larger proportion of plant food. It also appears that the leaves of the various kinds show marked differences in the relative amount of chlorophyll-bearing tissues. Other things being equal, it is probable that the power and quality of the leaf for food assimilation depends upon the amount of available chlorophyll it contains, and therefore a microscopic examination of the leaf-structure of any variety will be a help in estimating its comparative value.

The trade in Christmas-trees and greens grows larger year by year. Thirty years ago a Christmas-tree was seldom seen except in some home of the richest class, and the adornment of churches for the festival season was confined to the Catholic and Episcopal denominations. But the immense increase of our German population has popularized the Christmas-tree throughout the length and breadth of the land; and with the waning of old Puritan ideas the decoration of churches of all denominations has become customary. The extent to which materials for these purposes are now required is shown by the fact that a single dealer in New England last year disposed of 10,000 Christmas-trees, 25,000 yards of wreathing and 800 barrels of evergreen spray. The smallest trees that are sold bring, on the ground, ten cents apiece, while the largest—twenty-five to thirty feet in height—bring from $4 to $6.

French papers have recently contained summaries of the report of the Minister of Agriculture, Monsieur Viette, upon his tour through the wine-producing departments of France. Of the departments of Hérault, Gard and the Gironde, he says that the flooding of vineyards has had admirable results, and that renewal of the vines by means of grafting upon American species as stocks has proved successful. Grafts of French vines upon American stock have the advantage, it is claimed, of ripening their fruit earlier, and of being more productive without loss of delicacy in the fruit. After long experiment the way has been discovered to renew a vineyard in three years, if the necessary preparations are made. In Hérault this has almost everywhere been accomplished, and in Gard it is rapidly progressing. Vines planted in sand cover wide expanses, and everywhere an excellent harvest is expected. Hérault, which produced seventy-five million gallons of wine last year, is expected this year to produce more than a hundred millions, while forty-five millions are anticipated from the Gironde. Mildew as well as the phylloxera is being successfully combatted, and now, it is affirmed, the problem of viticulture has been mastered, from the cultivator's point of view. Economical questions alone remain for adjustment. A strict enforcement of the rules for the inspection of foreign wines on the frontier is recommended, as well as new regulations to control the manufacture of wine from grapes that are not fresh.